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(54) Title: MICROFABRICATED CELLULAR TRAPS BASED ON THREE-DIMENSIONAL MICRO-SCALE FLOW GEOMETRIES

(57) Abstract: An improved microfluidic device and method of using the microfluidic device to measure natural motile response of a living moiety to a chemotactic agent. The invention comprises integrating microfluidic containment trenches within the microfluidic devices for cellular trapping, manipulation and real-time analysis of biological phenomena, including chemotaxis. The invention captures the design methodology for these traps, as well as the fabrication means and the associated external control mechanism that allows rapid, reversible and fully controlled changes in the chemical environment to which trapped cells are exposed.



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